

Work Order ID 52462

Friday, September 25, 2009 10:07:50 AM



Page 1

Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning Detail

Start Date: 9/25/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 10/12/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

PL

Date:

09-25

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D212-664-241	Rev C								

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio
FA114□2-Turn first side as per Folio FA114□3- File transition lines smooth.

Q.M. 09-25-01 (1)

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

Q.M. 09-25-01 (1)

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA114□2- File transition lines smooth.□3-
Remove sand and plugs□4- scribe batch # and part # as per dwg

Q.M. 09-25-01 (2)

Work Order ID 52462

Friday, September 25, 2009 10:07:50 AM

Page 2

Item ID: D212-664-201TRN

Accept

Setup Start

Revision ID: C

Stop

Item Name: Crosstube Turning Detail

Start Date: 9/25/2009 Start Qty: 1.00

Cust Item ID:

Required Date: 10/12/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

a.m 09 - 10 - 01 (C)

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

2) Sorkolos

(TD)

/

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

SAD 09-10-06

Hand Finishing Crosstubes

Chemical Conversion Coat as per within 24 hours of machining

(P)

Work Order ID 52462

Friday, September 25, 2009 10:07:50 AM



Page 3

Item ID: D212-664-201TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning Detail

Start Date: 9/25/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 10/12/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

Q.m 09-10-06①

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack□Location: LG

Q.m 09-10-06①

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/10/07 AD

R/ 09-10-6

Picklist Print

Friday, September 25, 2009 10:07:50 AM

Page 1

Work Order ID: 52462



Parent Item: D212-664-201TRNRevC



Parent Item Name: Crosstube Turning Detail

Start Date: 9/25/2009

Required Date: 10/12/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6006-129RevA		Manufactured	No			120	Each	62.0000	1.0000			



Crosstube Material



Q.m 09-10-01 ①

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

LG

62

23970

2

26550

15

34690

11

38338

34

DART AEROSPACE LTD		Work Order: 52462
Description: Crosstube Assembly (205/212 High Aft)		Part Number: D212-664-241
Inspection Dwg: D212-664-241 Rev: C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.990	+0.005/-0.000	2.992	/			
	5.237	+/-0.030	5.237	/			
	2.600	+0.005/-0.000	2.605	/			
	2.686	+0.005/-0.000	2.689	/			
	2.770	+0.005/-0.000	2.775	/			
	2.854	+0.005/-0.000	2.859	/			
	2.938	+0.005/-0.000	2.943	/			
	3.021	+0.005/-0.000	3.026	/			
	3.133	+0.005/-0.000	3.137	/			
	3.179	+0.005/-0.000	3.184	/			
SIDE B	0.200	+/-0.010	0.200	/			
	R0.063	+/-0.010	R0.063	/			
	2.990	+0.005/-0.000	2.993	/			
	5.237	+/-0.030	5.237	/			
	2.600	+0.005/-0.000	2.605	/			
	2.686	+0.005/-0.000	2.689	/			
	2.770	+0.005/-0.000	2.775	/			
	2.854	+0.005/-0.000	2.859	/			
	2.938	+0.005/-0.000	2.943	/			
	3.021	+0.005/-0.000	3.026	/			
	3.133	+0.005/-0.000	3.137	/			
	3.179	+0.005/-0.000	3.184	/			
	124.36	+/-0.020	124.360	/			

Measured by: a.m	Audited by: S	Prototype Approval:	N/A
Date: 09.10.01	Date: 09/10/05	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-201)	KJ/JLM	
B	06.03.09	Tolerance for 5.237 was +/-0.001	KJ/JLM	
C	07.05.08	Dwg Rev. updated	KJ/JLM	

DART**RELEASED**
07.04.24
PER ECN 089**DEO ATTACHED**

DESIGN <i>PH</i>	DRAWN BY <i>PH</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>J</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D212-664-241	REV. C SHEET 1 OF 3
DATE 07.03.08		TITLE CROSSTUBE ASS'Y (205/212 HI AFT) NTS	
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
C	07.03.08	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	

Qty	Part Number	Description
X	D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
1	D6006-129	CROSSTUBE
2	D2940-1	SUPPORT
4	D3595-063-530	RUBBER CUSHION
4	MS21920-28	CLAMP (OR MS21920-30)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

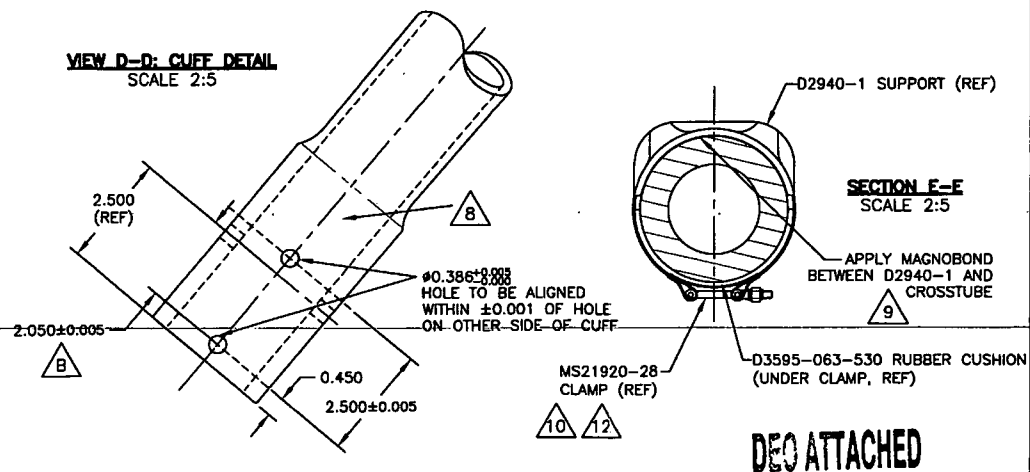
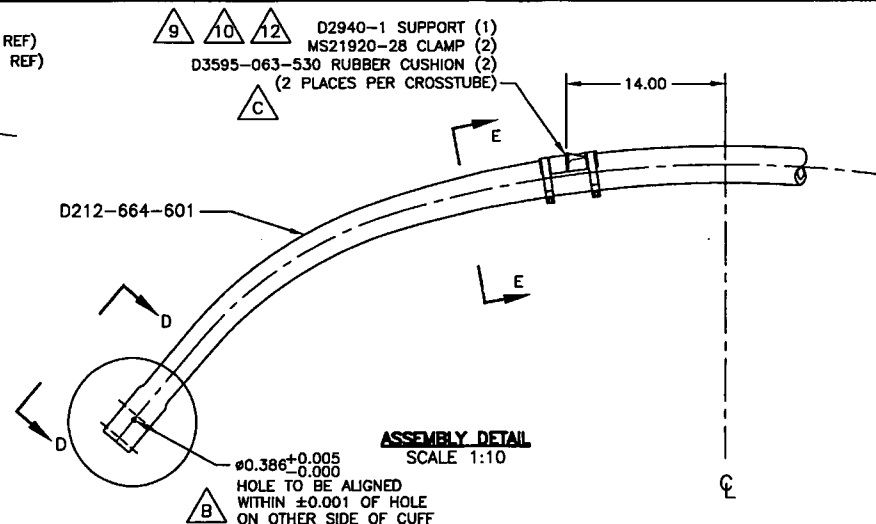
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.36±0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 10) INSTALL MS21920-28 CLAMPS WITH D3595-063-530 RUBBER CUSHIONS TO SECURE D2940-1 SUPPORT ON TOP SIDE OF CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT
NOTE: MS21920-30 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 32462

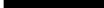
Copyright © 2000 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

W/O 52462



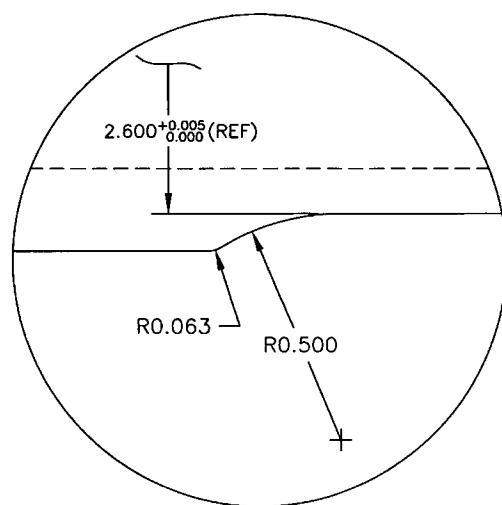
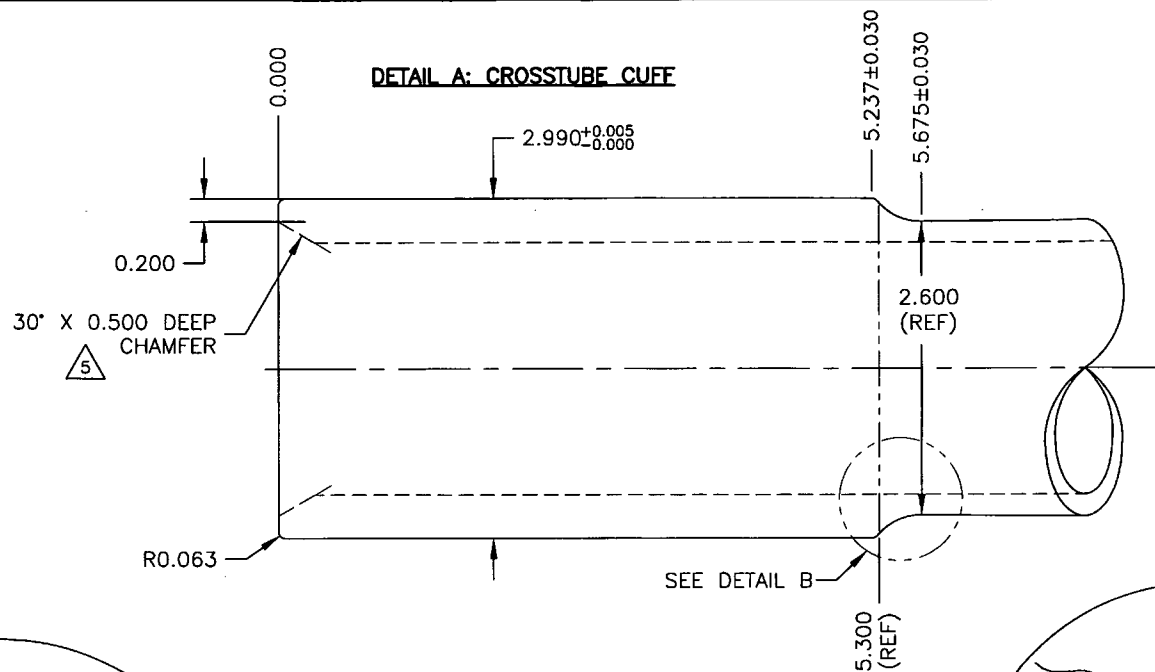
DEO ATTACHED

COPYRIGHT © 2000 BY DART AEROSPACE LTD. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	DESIGN <i>PH</i>	DRAWN BY <i>PH</i>	 DART AEROSPACE LTD. <small>MARKHAM, ONTARIO, CANADA</small>	
	CHECKED <i>J</i>	APPROVED <i>[Signature]</i>		DRAWING NO. D212-664-241
	DATE 07.03.08	TITLE CROSSTUBE ASSY (205/212 HI AFT)		SCALE 1:10

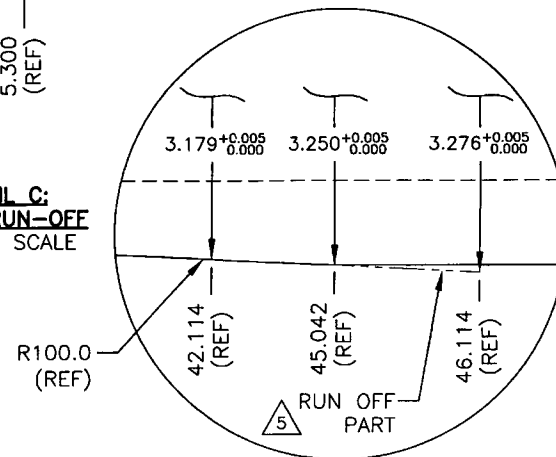
W/O 52462

RELEASED
07.04.24
TER ECN 859

DEO ATTACHED



DETAIL C: TAPER RUN-OFF
NOT TO SCALE



COPYRIGHT © 2000 BY DART AEROSPACE LTD.		DESIGN PH	DRAWN BY PH	DART DART AEROSPACE LTD. HAMMILLSBURY, ONTARIO, CANADA
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED PH	APPROVED PH	REV. C
DATE 07.03.08		DRAWING NO. D212-664-241		SHEET 3 OF 3
		TITLE CROSSTUBE ASS'Y (205/212 HI AFT)		SCALE 1:1

W/O 52462

DRAWING NO. D212-664-241	TITLE CROSSTUBE	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-241-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN CP	CHECKED AT	MFG. APPR. E	APPROVED MD		DE APPR. AT		
DATE 09.05.01	DATE 09.06.15	DATE 09.06.15	DATE 09/06/16		DATE 09/06/16		

CHANGE:

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)

THE D212-664-241B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-241 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-241 CROSSTUBE.

RELEASED
09/06/22 JHP

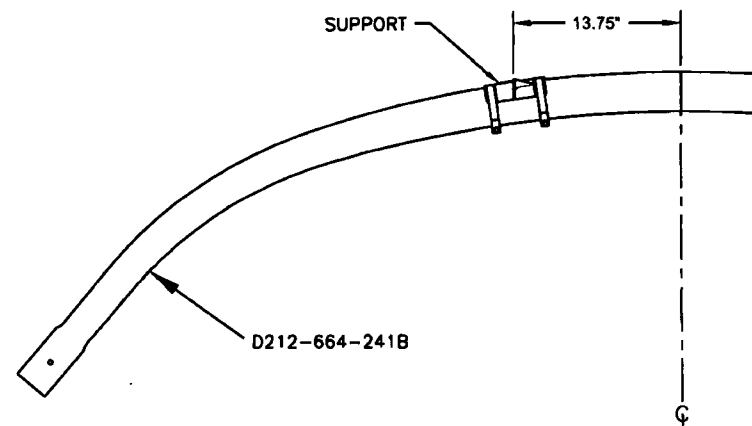


FIGURE 1 - SUPPORT INSTALLATION